REMARKS

The 20 December 2000 official action addressed claims 2-3 and 5-10. All claims have been amended and remain pending.

Claims 2-3 and 5-10 were rejected under 35 U.S.C. § 102(b) as anticipated by Kakinami (U.S. 5,892,855). The teachings of Kakinami have been studied, and it is believed that the pending claims will be found to be allowable when the following points are taken into consideration.

Kakinami discloses an automobile video system that is used to detect other vehicles. As shown in Figure 3, the video system uses three cameras that are pointed forward from the automobile. Each camera produces an image of a different part of the road at a different distance from the automobile. Within each image is a feature detecting window within which the system may detect a vehicle. The feature detecting windows do not overlap. As stated in Kakinami: "Fig. 3 shows a coverage (the entire screen) of each of the cameras 16b, 26b and 36b in relation to the distance measured forward of the own vehicle, and a region where the detection of a white line and a vehicle takes place (corresponding to y=150 to y=350: the region corresponding to the feature points detecting window 2)" (col. 7, line 64 - col. 8, line 2). It is clearly seen in Figure 3 that each camera's "region where the detection of a white line and a vehicle takes place" (indicated by crosshatching ⧓) does not overlap the "region" of the other cameras. Each of Kakinami's cameras is individually pointed at a detected vehicle within its range. As stated in Kakinami, "A camera which has detected the presence of a vehicle within the field of view (corresponding to a range from y=150 to y=350) is steered to place the detected vehicle at the center of the field of view" (col. 8, lines 24-27). Vehicles are detected by identifying the features of the vehicle within an image that combines the non-overlapping images of the three cameras. See col. 33, line 6 - col. 34, line 30. When a vehicle is detected, its position relative to the automobile is determined from the median location along the X axis and the Z axis (col. 33, lines 50-57). Although Kakinami does not explicitly describe how the distance to a detected vehicle is determined, it is

believed that the distance to the detected vehicle is known because the distances represented by the top and bottom of each feature detecting window are known, and so a vertical position within the combined feature detecting windows of the three cameras corresponds directly to a distance from the automobile. Thus, in Kakinami the distance to the vehicle is detected by determining its vertical position in a combined image produced by three cameras pointed at different positions having different fixed distances from the camera.

All pending claims recite features that are not taught or suggested by Kakinami. First, all claims now specify that images of an object are processed so that the pixel units of each image are equal in the amount of the object that they represent. In other words, the area represented by each pixel is approximately the same. This is described in the specification at pages 21-22, which explain that a higher resolution image is sampled to have approximately the same number of pixels to represent the object as a low resolution image, so that the images become the same size in terms of the number of pixels that represent the object, and thus the pixels represent approximately the same amount of area of the object in each image. In the official action, it was noted that Kakinami converts pixels to equal polar coordinates, however it is believed that this is substantially different than converting pixels to represent equal amounts of the object.

In addition, all claims specify that images of the object formed by each camera are compared using stereo imaging to determine a distance to the object. Stereo imaging is described in the background section of the application in relation to Figure 6, which explains that the stereo imaging method determines the distance to an object using triangulation based on the angles of cameras imaging the object. The official action noted that Kakinami determines a distance to an object, however, as noted above Kakinami appears to determine distance based on the location of a median point of an object within the image. Further, Kakinami's cameras image different portions of a road rather than the same portion, and so Kakinami clearly does not use a stereo imaging method whereby triangulation based on the angles of the cameras is used to determine distance, as recited in the pending claims.

The above amendments and remarks address all bases for rejection and place the application in condition for allowance. The examiner is invited to contact the undersigned to resolve any remaining issues.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on April 18, 2001.

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